REMARKS

This Application has been carefully reviewed in light of the Office Action mailed February 15, 2000. The Examiner rejects Claims 1-19 (set forth in the Appendix hereto) under 35 U.S.C. § 101 as being directed to non-statutory subject matter. Specifically, the Examiner asserts that the invention "does merely manipulate an abstract idea and solve a purely mathematical problem without limitation to a practical application in the technological arts." In light of the remarks below, Applicant respectfully requests reconsideration and favorable action in this case.

The claims recite statutory subject matter according to State Street

In *State Street Bank & Trust Co. v. Signature Financial Group Inc.*, 149 F.3d 1368 (Fed. Cir. 1998), the Federal Circuit held that even purely mathematical algorithms are patentable if they are applied in a useful way. The method in this case is applied in a useful way — valuing multiple products each having multiple components — and is therefore statutory under the governing law. Accordingly, reconsideration of the Examiner's rejections is respectfully requested.

In *State Street*, the Federal Circuit stated that "Unpatentable mathematical algorithms are identifiable by showing they are merely abstract ideas constituting disembodied concepts or truths that are not 'useful'." *Id.* at 1373. "To be patentable, an algorithm must be applied in a 'useful' way." *Id.* Furthermore, the Federal Circuit noted: "the mere fact that a claimed invention involves inputting numbers, calculating numbers, outputting numbers, and storing numbers, in and of itself, would not render it nonstatutory subject matter, unless, of course, its operation does not produce a 'useful, concrete and tangible result.'" *Id.* The court in *State Street* went on to hold that "the transformation of data, representing discrete dollar amounts, by a machine through a series of mathematical calculations into a final share price, constitutes a practical application of a mathematical algorithm . . . because it produces a 'useful, concrete and tangible result' – a final share price momentarily fixed . . ." *Id.*

A. The claims apply mathematical algorithms to produce useful, concrete and tangible results

Applicant respectfully submits that Claims 1-19 likewise recite the practical application of mathematical algorithms to produce useful, concrete and tangible results. For example, Claims 1 and 16 recite the transformation of product price and product demand probability values into values of products. Determining the values of products is certainly a useful, concrete and tangible result. Claim 6 recites the transformation of a set of product values over a range of available supplies of the product, a size of an order for the product, and a lead time associated with the order into a price for the product order. Determining the price for a product order is certainly a useful, concrete and tangible result. Claim 11 recites the transformation of product demand probability values and expected revenues from products into an asking price for each of the products. Again, determining an asking price for products is certainly a useful, concrete and tangible result. For at least these reasons, Applicant respectfully submits that independent Claims 1, 6, 11, and 16, and all claims depending from these independent claims recite statutory subject matter.

B. Claim 16 specifically recites a tangible medium

In addition, as to Claim 16, Applicant respectfully directs the Examiner's attention to the Federal Circuit decision of *In Re Beauregard,* 53 F.3d 1583 (Fed. Cir. 1995), in which the Commissioner of the United States Patent and Trademark Office ("PTO") is quoted as stating, "Computer programs embodied in a tangible medium, such as floppy diskettes, *are patentable subject matter* under 35 U.S.C. § 101 and *must be examined* under 35 U.S.C. §§ 102 and 103." *Id.* at 1584. (Emphasis added.) Claim 16 recites valuation software embodied in a computer-readable medium and thus is also statutory for at least this reason (in addition to its recitation of a useful, concrete and tangible result).

CONCLUSION

Applicant has made an earnest attempt to place this case in condition for allowance. For the foregoing reasons and for other reasons clearly apparent, Applicant respectfully requests allowance of Claims 1-19.

If the Examiner feels that a telephone conference would advance prosecution of this Application in any manner, the Examiner is invited to contact Christopher W. Kennerly, Attorney for Applicant, at the Examiner's convenience at (214) 953-6812.

The Commissioner is hereby authorized to charge any fees or credit any overpayments to Deposit Account No. 02-0384 of Baker Botts L.L.P.

Respectfully submitted,

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APPENDIX

1. A computer-implemented method of valuing products, comprising:

assigning a price to each of a plurality of products, each product comprising one or more product components;

assigning a demand probability value to each product;

calculating a component value for each component by performing the following steps:

(a) assuming a beginning value for each component;

(b) for a first component, calculating prorated values, such that for each product using that component, a prorated value is calculated on that component by calculating the difference between the product price and a value of the product's other components;

(c) calculating a component value as a function of the prorated values and the probability values;

(d) repeating steps (b) and (c) for all other components;

(e) determining whether the component values converge; and

(f) if any component value does not converge, using the calculated component value as the beginning component value and repeating steps (b) through (e) for that component; and

calculating a value for each product, based on the results of the preceding step, by summing the component values of all components of that product.

2. The method of Claim 1, wherein step (c) is performed by multiplying probability values by prorated values.

3. The method of Claim 1, wherein step (c) is performed by obtaining a sum of products of probability values and prorated values.

4. The method of Claim 1, wherein the probability values include both the probability of demand for a product and the probability that demand will arrive in a certain order relative to other products.

5. The method of Claim 1, wherein the method is performed to value non-standard products and assigning prices to products is performed by assigning prices of standard products.

6. A computer-implemented method of pricing an order for a product based on varying lead times during a specified time period, comprising:

calculating a set of values for a product over a range of available supplies of the product;

determining a size Q of the order;

selecting a set of order points during a time horizon, each order point having a lead time LT to the next order point;

for a first order point, calculating an incremental production quantity as Q/LT, and calculating revenue displaced by the incremental production quantity using the product values;

repeating the preceding step for each other order point;

calculating an average displaced revenue; and

calculating the price for the order, using the results of the preceding step.

7. The method of Claim 6, wherein:
the product has multiple components; and
the method further comprises repeating all steps for each component and summing the results.

8. The method of Claim 7, wherein calculating the price for the order comprises:
(a) assuming a beginning value for each component;
(b) for a first component, calculating prorated values, such that for each product using that component, a prorated value is calculated on that component by calculating the difference between the product price and a value of the product's other components;
(c) calculating a component value as a function of the prorated values and the probability values;
(d) repeating steps (b) and (c) for all other components;
(e) determining whether the component values converge;
(f) if any component value does not converge, using the calculated component value as the beginning component value and repeating said steps (b) through (e) for that component; and
(g) summing the values of all the components.

9. The method of Claim 6, wherein the displaced revenue is calculated by integrating a curve representing the set of product values.

10. The method of Claim 6, wherein the displaced revenue is calculated as the difference between a total potential revenue, determined from the product values for all available supplies S, and the total potential revenue for S - Q.

11. A computer-implemented method of pricing make-to-order products, comprising:
assigning a demand probability value to each of a plurality of products, each product having an associated delivery time and price;
calculating an expected revenue from the products for at least two available capacities, the expected revenue being a function of the demand probability values and the prices; and
calculating an asking price for each of the products as the difference between its expected revenue from successive available capacities.

12. The method of Claim 11, wherein the expected revenue is calculated as a sum of products of the probability values and the prices.

13. The method of Claim 11, wherein the expected revenue is calculated from a binary tree representing the probability values and the prices.

14. The method of Claim 11, wherein the expected revenue is calculated for each product in response to a product control policy.

15. The method of Claim 11, further comprising comparing the asking price for different products at a given capacity.

16. Valuation software for valuing manufactured products embodied in a computer-readable medium and operable to perform the following steps:

assigning a price to each of a plurality of products, each product comprising one or more product components;

assigning a demand probability value to each product;

calculating a component value for each component by performing the following steps:

(a) assuming a beginning value for each component;

(b) for a first component, calculating prorated values, such that for each product using that component, a prorated value is calculated on that component by calculating the difference between the product price and a value of the product's other components;

(c) calculating a component value as a function of the prorated values and the probability values;

(d) repeating steps (b) and (c) for all other components;

(e) determining whether the component values converge;

(f) if any component value does not converge, using the calculated component value as the beginning component value and repeating steps (b) through (e) for that component; and

calculating a value for each product, based on the results of the preceding step, by summing the component values of all components of that product.

17. The valuation software of Claim 16, wherein each product has an associated lead time and wherein calculating a value for each product further comprises using the lead time values and the component values to determine product values.

18. The valuation software of Claim 16, wherein each product has an associated delivery time and wherein calculating a value for each product comprises using the delivery time values and the component values to determine product values.

19. The valuation software of Claim 16, further operable to use the product values to determine whether to accept orders for products.